

WHAT IS CLAIMED:

1. A method for working on a spine, said method comprising:

providing a retractor having a distal portion and an expandable body coupled to the distal portion;

positioning the expandable body between adjacent vertebrae; and

expanding the expandable body to spread the adjacent vertebrae apart.

2. The method of claim 1, further comprising operating between the adjacent vertebrae.

3. The method of claim 2, further comprising operating between the adjacent vertebrae while said expandable body is expanded.

4. The method of claim 2, wherein operating between the vertebrae comprises removing tissue from between the vertebrae.

5. The method of claim 4, wherein the tissue removed comprises the intervertebral disc.

6. The method of claim 1, wherein said expandable body comprises an inflatable bladder, said expanding the expandable body comprises inflating said inflatable bladder.

7. The method of claim 6, wherein the bladder of the retractor comprises repositionable rigid surfaces.

8. The method of claim 6, wherein the bladder, when inflated, has a shape selected from the group consisting of curved and wedge-shaped.

9. The method of claim 6, wherein the bladder, when inflated, extends around a longitudinal axis of the retractor.

10. The method of claim 1, wherein the expandable member is spread and arranged for spreading apart the adjacent vertebrae.

11. The method of claim 10, wherein the bladder is sized and arranged for enabling removal of intervertebral tissue from between adjacent vertebrae.

12. The method of claim 7, wherein the bladder is formed as an accordion or as a wedge-shaped member.

13. The method of claim 6, wherein the bladder is inflated at a pressure from 10 mmHg to 1000 mmHg.

14. The method of claim 1, further comprising positioning a cannula between the adjacent vertebrae, wherein positioning of the retractor comprises introducing the retractor through a passage of the cannula.

15. The method of claim 6, wherein the bladder is inflated without unconfined fluid introduced to the joint.

16. The method of claim 1, further comprising introducing instruments between said adjacent vertebrae to perform an operation.

17. The method of claim 1, wherein positioning the expandable member comprises manipulating a rigid shaft having the member at an end thereof.

18. The method of claim 1, wherein positioning the expandable member comprises manipulating a flexible shaft having the member at an end thereof.

19. The method of claim 6, wherein the bladder comprises a polymeric material.

20. A method for working on a spine, said method comprising:

positioning a cannula to access the spine;

providing a retractor having a distal portion and an expandable member coupled to the distal portion;

introducing the expandable member through the cannula to access adjacent vertebrae;

positioning the expandable member between the adjacent vertebrae;

expanding the expandable member to spread the adjacent vertebrae apart; and

operating on the spine using an instrument introduced between the expanded vertebrae.

21. The method of claim 20, further comprising operating on the spine between the adjacent vertebrae while said expandable body is expanded.

22. The method of claim 21, wherein operating on the spine comprises removing tissue from between the vertebrae.

23. The method of claim 22, wherein the tissue removed comprises the intervertebral disc.

24. The method of claim 20, wherein said expandable member comprises an inflatable bladder, said expanding the expandable member comprising inflating said inflatable bladder.

25. The method of claim 24, further comprising deflating said bladder and removing the bladder from the spine.

26. The method of claim 20, wherein the expandable member is disposed at the distalmost end of the retractor.

27. A method for working on a spine, said method comprising:

positioning a cannula to access the spine;
providing a retractor having an inflatable bladder;
introducing the bladder through the cannula to access adjacent vertebrae;

positioning the inflatable retractor between the adjacent vertebrae; and
inflating the bladder to spread the adjacent vertebrae apart.

28. The method of claim 27, wherein the bladder comprises a stretchable material so that it at least partially collapses when deflated.

29. The method of claim 27, wherein the bladder comprises a material which does not stretch.

30. The method of claim 27, wherein inflating the bladder pushes soft tissue out of the way.

31. The method of claim 27, further comprising introducing at least one instrument between the adjacent

vertebrae and operating between the adjacent vertebrae with said instrument.

32. The method of claim 31, further comprising operating between the adjacent vertebrae while said expandable body is expanded.

33. The method of claim 31, wherein operating between the vertebrae comprises removing tissue from between the vertebrae.

34. The method of claim 33, wherein the tissue removed comprises the intervertebral disc.

35. The method of claim 33, wherein the bladder remains inflated while the instrument is introduced to perform the operation.

36. The method of claim 33, wherein the bladder is removed prior to or while the instrument is introduced to perform the operation.

37. The method of claim 31, further comprising contracting the bladder; and removing the retractor from the spine.

38. A method to spread adjacent surfaces in a bone joint, said method comprising:

providing a retractor having an inflatable bladder;

positioning the inflatable bladder between the adjacent surfaces in the bone joint; and
inflating the bladder to spread the adjacent surfaces apart.

39. The method of claim 38, wherein the inflatable bladder is positioned between adjacent vertebrae.

40. The method of claim 39, wherein inflating the bladder causes the bladder to directly engage a surface on the adjacent vertebrae.

41. The method of claim 40, wherein inflating the bladder causes the bladder to engage surfaces on each of the adjacent vertebrae.

42. The method of any of claims 38, further comprising removing the bladder after the adjacent surfaces have been spread.

43. The method of any of claims 38, wherein a portion of the bladder of the retractor comprises at least one rigid surface.

44. The method of claim 43, wherein the bladder comprises a plurality of rigid surfaces connected by regions having differing degrees of resistance to straightening and flexing.

45. The method of claim 44, wherein the bladder is formed as an accordion.

46. The method of claim 38, wherein the bladder of the retractor has areas of rigidity interleaved with areas of more elasticity.

47. The method of claim 38, wherein the bladder is formed from a substantially inelastic material does not stretch when inflated.

48. The method of claim 38, wherein the bladder is inflated at a pressure from 10 mmHg to 1000 mmHg.

49. The method of claim 38, further comprising positioning a cannula between the adjacent vertebrae, wherein positioning of the inflatable retractor comprises introducing the retractor through a passage of the cannula.

50. The method of claim 38, wherein the bladder is inflated without unconfined fluid introduced to the joint.

51. The method of claim 38, further comprising visualizing the space between said adjacent surfaces with a fiberoptic light and camera.

52. The method of claim 38, further comprising introducing instruments to a space between said adjacent surfaces to perform an operation.

53. The method of claim 38, wherein positioning the bladder comprises manipulating a rigid shaft having the bladder at an end thereof.

54. The method of claim 38, wherein positioning the bladder comprises manipulating a flexible shaft having the bladder at an end thereof.

55. The method of claim 38, wherein the bladder comprises a polymeric material.

56. The method of claim 38, wherein the joint is a knee joint.

57. The method of claim 56, wherein the bladder has a wedge-shape when inflated to separate surfaces of a femur and a tibia.

58. The method of claim 57, wherein at least one wedge-shaped bladder is inflated between the femur and the tibia.

59. A method for enlarging a space between adjacent surfaces in a joint, said method comprising:

positioning a cannula to access the joint;
introducing a bladder into the joint through the
cannula;
inflating the bladder to distend the joint to create
the space; and
removing the bladder from the joint.

60. The method of claim 59, wherein the bladder is
inflated without unconfined pressure present in the joint.

61. The method of claim 59, further comprising
visualizing the space with a fiberoptic light and camera.

62. The method of claim 61, wherein a fiberoptic
scope is introduced through the cannula.

63. The method of claim 61, further comprising
introducing instruments to the space to perform an operation.

64. The method of claim 59, wherein introducing the
bladder comprises manipulating a rigid shaft having the bladder
at an end thereof.

65. The method of claim 59, wherein introducing the
bladder comprises manipulating a flexible shaft having the
bladder at an end thereof.

66. The method of claim 59, wherein the bladder comprises a polymeric material.

67. The method of claim 59, wherein the bladder comprises an elastic material so that it at least partially collapses when deflated.

68. The method of claim 59, wherein the bladder comprises a substantially inelastic material.

69. The method of claim 59, wherein the bladder remains inflated while the instruments are introduced to perform the operation.

70. The method of claim 59, wherein the bladder is removed prior to or while the instruments are introduced to perform the operation.

71. The method of claim 70, further comprising applying a vacuum to deflate the bladder prior to withdrawing the bladder.

72. The method of claim 59, wherein inflating the bladder moves soft tissue out of the way.

73. The method of claim 59, wherein the joint is between two vertebrae in a spine, wherein inflation of the bladder spreads the two vertebrae apart.

74. The method of claim 73, further comprising removing a spinal disc between the vertebrae.

75. The method of claim 59, wherein the joint is in a knee.

76. The method of claim 75, wherein the bladder has a wedge-shape when inflated to separate surfaces of a femur and a tibia.

77. The method of claim 76, wherein at least one wedge-shaped bladders are inflated between the femur and the tibia.

78. A method for working within a bone joint, said method comprising:

providing a retractor having an inflatable bladder;

positioning the inflatable bladder between adjacent surfaces of the bone joint;

inflating the bladder to spread the adjacent surfaces to enlarge a working space in said joint; and

operating on the joint using an instrument introduced into the enlarged working space.

79. The method of claim 78, further comprising removing the inflatable bladder after the joint has been operated on.

80. The method of claim 78, wherein the instrument is introduced through bone to access the enlarged working space.

81. The method of claim 78, wherein the joint is a knee joint.

82. The method of claim 78, wherein the joint is between adjacent vertebrae in a spine.

83. The method of claim 78, wherein operating on the joint comprises removing tissue or bone.

84. The method of claim 82, wherein the tissue comprises a spinal disc.

85. The method of claim 78, wherein a portion of the bladder of the retractor comprises at least one rigid surface.

86. The method of claim 85, wherein the bladder has a plurality of rigid surfaces connected by regions having differing degrees of resistance to straightening and flexing.

87. The method of claim 86, wherein the bladder is formed as an accordion.

88. The method of claim 78, wherein the bladder of the retractor has areas of rigidity interleaved with areas of more elasticity.

89. The method of claim 78, wherein the bladder is formed from a substantially inelastic material.

90. The method of claims 78, wherein the bladder is inflated at a pressure from 10 mmHg to 1000 mmHg.

91. The method of claim 78, further comprising positioning a cannula between the adjacent vertebrae, wherein positioning of the inflatable retractor comprises introducing the retractor through a passage of the cannula.

92. The method of claim 78, wherein the bladder is inflated without unconfined fluid introduced to the joint.

93. The method of claim 78, further comprising visualizing the space with a fiberoptic light and camera.

94. The method of claim 93, wherein a fiberoptic scope is introduced through a cannula.

95. The method of claims 78, wherein positioning the bladder comprises manipulating a rigid shaft having the bladder at an end thereof.

96. The method of claim 78, wherein positioning the bladder comprises manipulating a flexible shaft having the bladder at an end thereof.

97. The method of claim 78, wherein the bladder is composed of a polymeric material.

98. The method of claim 78, wherein the bladder remains inflated while the instruments are introduced to perform the operation.

99. The method of claim 78, wherein the bladder is removed prior to or while the instruments are introduced to perform the operation.

100. The method of claim 99, further comprising applying a vacuum to deflate the bladder prior to withdrawing the bladder.

101. The method of claim 78, wherein inflating the bladder moves soft tissue out of the way.